CALIFORNIA OIL, GAS AND GROUNDWATER
November 2 - 3, 2016 Bakersfield Marriott at the Convention Center

PRELIMINARY AGENDA
CALIFORNIA OIL, GAS AND GROUNDWATER
November 2 - 3, 2016 Bakersfield Marriott at the Convention Center

DAY 1 – NOVEMBER 2, 2016

7:00AM Registration/Continental Breakfast

Session 1 - Welcome & Keynote Address Moderator: Ted Johnson, Water Replenishment District of Southern California
8:00AM - 8:15AM Conference Welcome
GRA President, Chris Petersen
8:15AM - 9:00AM Overview of Current Water Board Activities with Oil, Gas and Groundwater (SB-4, UIC, Ponds/Pits, Aquifer Exemptions, other) - John Borkovich, State Water Resources Control Board
9:00AM - 9:45AM Oil Fields and Groundwater in the Central Valley: an Overview - Bill Bartling, CA Department of Conservation, Division of Oil, Gas & Geothermal Resources
9:45AM - 9:55AM Meet the Sponsors & Exhibitors
9:55AM - 10:20AM Break - Exhibit Area

Session 2 - Groundwater Supply and Protection Moderator: Lynn Edlund, Trihydro
10:20AM - 10:45AM Overview of Regional Monitoring of the Potential Effects of Oil and Gas Development on Groundwater Resources in California - Matt Landon, United States Geological Survey
10:45AM - 11:10AM Water Available for Replenishment - Rich Juricich, CA Department of Water Resources
11:10AM - 11:35AM Science Advisory Board’s Review of USEPA’s draft Assessment of Potential Impacts of Hydraulic Fracturing on Drinking Water Resources - Steve Bohlen, Lawrence Livermore National Laboratory
11:35AM - 12:00AM General Orders for Discharges to Land - Clay Rodgers, Central Valley Regional Water Quality Control Board

Lunch & Keynote Speaker Moderator: Murray Einarson, Haley & Aldrich
12:00PM - 1:30PM Fracking, Wellbore Integrity and Groundwater Quality: A Canadian Perspective - Richard Jackson, GeoFirma Engineering Ltd.

Session 3 - Assessment and Monitoring - Part 1 Moderator: Brent Miyazaki, AECOM
1:30PM - 1:55PM Tools for Distinguishing Background Groundwater Salinity from Impacts on USDWs by Produced Water Injection or Well Stimulation in California - Shawn Paquette, John A Connor, Lisa J. Molofsky, Kenneth L. Walker, Jr., GSI Environmental, Inc.
1:55PM - 2:20PM Multi-Depth Monitoring Systems to Support Oil & Gas Monitoring in California - Murray Einarson, Haley & Aldrich
2:45PM - 3:10PM Use of Airborne and Surface Geophysics for Mapping Changes in Groundwater Salinity and Geology - Lindsay Ball, USGS
3:10PM - 3:30PM Break - Exhibit Area

Session 4 - Water Supply, Handling and Recycling Moderator: Jean Kulla, K2 Enviro, Inc.
3:30PM - 3:55PM Produced Water: Valuable Resource or Waste By-Product? - Earl Hagstrom, Sedgwick, LLP
3:55PM - 4:20PM How is SGMA Being Implemented in Kern County? - Eric Averett, Kern Groundwater Authority
4:20PM - 4:45PM New Water from Produced Water Desalination Plants in the Edison Oilfield, Kern County - Christine Zimmerman, Valley Water Management Company
4:45PM - 5:10PM Industry Focus: Aera Energy’s Total Water Stewardship and Aquifer Source Water Transition - Willie Morris, Aera Energy

Reception & Poster Session
5:10PM - 7:00PM
7:00AM Registration/Continental Breakfast
### DAY 2 – NOVEMBER 3, 2016

<table>
<thead>
<tr>
<th>Time</th>
<th>Session 5 - Groundwater Assessment and Monitoring - Part 2 Moderator: Bill Pipes, Amec Foster Wheeler</th>
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<tbody>
<tr>
<td>8:00AM - 8:15AM</td>
<td>Welcome</td>
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<tr>
<td>8:15AM - 8:40AM</td>
<td>Concepts and Examples of Regional Groundwater and Produced Water Monitoring Design Near Selected Oil Fields - Peter McMahon, USGS</td>
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<td>8:40AM - 9:05AM</td>
<td>Water Quality Profiles from Well Logs: Simple Solutions are Often Not the Best Solutions - Deborah Olson, PayZone</td>
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<td>9:05AM - 9:30AM</td>
<td>Mapping Fluid Salinity Near Oil Fields in Kern County Using Existing Water Sample Data and Oil Well Borehole Geophysical Log Analysis - David Shimabukuro, California State University, Sacramento</td>
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<td>9:30AM - 9:55AM</td>
<td>Results of Exploratory Groundwater and Produced – Water Sampling in Selected Oil and Gas Areas and Sources of High Methane Concentrations in Los Angeles Groundwater - Justin Kulongoski, USGS</td>
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<td>9:55AM - 10:20AM</td>
<td>Break - Exhibit Area</td>
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### Session 6 - Legislative and Water Quality Updates and Issues Moderator: Rob Gailey, Consulting Hydrogeologist

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<tr>
<td>10:20AM - 11:45AM</td>
<td>Oil, Gas and Groundwater - Latest Legislative Activities - Thomas Minter, AECOM</td>
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<td>10:45AM - 11:10AM</td>
<td>Risk Evaluation on using Treated Produced Water for Agriculture - Luis Navarro, ERM</td>
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<td>11:10AM - 11:35AM</td>
<td>CEQA Implementation Related to Oil, Gas and Groundwater - Bill Gorham, AECOM</td>
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<td>11:35AM - 12:00PM</td>
<td>Groundwater Banking and Oil Fields - Jon Parker, Kern Water Bank</td>
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<td>12:00PM - 12:05PM</td>
<td>Conference Closing Comments and Field Trip Information - Ted Johnson, Water Replenishment District of Southern California</td>
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### Optional Field Trip Moderator: Jean Kulla, K2 Enviro, Inc.

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<td>12:30PM - 5:00PM</td>
<td>Lunch included. Limited Seating (first 40 sign ups only). Field trip to the Belridge Producing Complex of Aera Energy LLC will take place on the afternoon of November 3rd. The Belridge Producing Complex is located about an hour west/northwest of Bakersfield and includes oil and gas exploration and production operations in the North and South Belridge (sixth most productive field in the U.S.), Lost Hills, Cymric and McKittrick oil fields. Representatives from Aera will discuss how the fields are operated, how production fluids (including water) are handled and will share best practices on communication efforts with neighbors and agriculture as the industry works to build stronger relationships and transparency with the public. Bus will stop occasionally for photo opportunities.</td>
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POSTER PRESENTATIONS

Preliminary Prioritization of California Oil and Gas Fields for Regional Groundwater Monitoring Based on Intensity of Petroleum Resource Development and Proximity to Groundwater Resources
Tracy A. Davis, Matthew K. Landon, and George Bennett U.S. Geological Survey

Converting Scanned Oil Well Data into Usable Digital Data
David Shimabukuro and Ashley Ducart, California State University, Sacramento, Geology Department

Calculation of Groundwater Salinity Using the Resistivity-Porosity (RP) Method on Digitized Geophysical Logs from California Oil and Gas Fields
Michael Stephens and David Shimabukuro, California State University, Sacramento, Geology Department and Janice Gillespie, U.S. Geological Survey

Scaling Up Well Log Interpretation for Groundwater Salinity Mapping in the Age of Big Data
William Chang, Tule Analytics, David Shimabukuro, California State University, Sacramento, Janice Gillespie, U.S. Geological Survey, Michael Stephens, California State University, Sacramento

Mechanical Properties of Siliceous Mudstones Relative to Composition, Porosity, and Diagenesis. Upper Monterey Formation, Belridge Oil Field, San Joaquin Basin, California.
Ryan, M. Weller and Richard J. Behl, California State University Long Beach.

Optimization to Reduce Water Use while Increasing Asset Value

The Tracer Pulse Flowmeter and Depth Dependent Sampler: High Resolution Groundwater Data from Long-Screened Test Wells and Boreholes
Lucas Allen-Williams, BESST, Inc.